

XVI.—*Catalogue of the Land and Freshwater Mollusca of Ireland*. By WM. THOMPSON, Vice-President of the Natural History Society of Belfast.

[Continued from p. 34.]

Gen. 5. SUCCINEA, Drap.

1. *S. putris*, Flem., Jeff. Gray, Man. p. 178†.

S. amphibia, Drap. p. 58. pl. 3. f. 22; *Turt. Man.* p. 91.

Helix putris, Linn. *Mont.* p. 376. t. 16. f. 4.

Is generally distributed throughout Ireland. Specimens agreeing with the var. β . of Draparnaud—"major solidior, colore carneo"—in form (see pl. 3. f. 23.), colour, and more than ordinary thickness, though not in being larger than usual, are occasionally met with. The varieties γ † ("media magis elongata et colorata") and δ ("minor, apertura ovata") are found in the north. Individuals of this species, which adhere to stones in wet spots at a considerable elevation in the northern mountains, are, as may be expected, invariably much dwarfed in size.

2. *S. Pfeifferi*, Rossm. Gray, Man. p. 179. pl. 6. f. 74.*

S. gracilis, Alder, *Mag. Zool. and Bot.* vol. ii. p. 106.

S. Amphibia, b. *Pfeiffer*, p. 67. t. 3. f. 37.

Although less common than the last, this species or variety is widely diffused over the island—in the north it is not uncommon, and is here generally of the same amber colour as *S. amphibia*; as likewise are English specimens which I owe to the kindness of Mr. Alder; specimens of a reddish horn-colour, and much thicker than usual, have occasionally occurred to me in the north, and in quantity they have been obtained by Mrs. Patterson of Belfast, near Portarlington. Mr. Humphreys notices this shell under the name of *S. oblonga*, Turt., as found about Cork, and by this appellation Mr. Harvey mentions Ballitore (county Kildare) and Limerick as habitats, adding at the same time—"animal darker than in the last [*S. amphibia*], and found in far wetter places." From Finnoe (county Tipperary) I have been favoured by Mr. E. Waller with typical specimens of this *Succinea*, as admirably represented in Gray's Manual (f. 74*).

6. BULIMUS§, Bruguiere.

1. *B. obscurus*, Drap. p. 74. pl. 4. f. 23; Gray, Man. p. 183. pl. 6. f. 63; *Turt. Man.* p. 81. f. 63.

Helix obscura, Mull. *Mont.* p. 391. t. 22. f. 5.

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‡ This is probably *S. Pfeifferi*.

§ *Bulimus Lackamensis*, Flem. Gray, Man. p. 181. pl. 6. f. 62.

B. montanus, Drap. p. 74. pl. 4. f. 22; *Turt. Man.* p. 80. f. 62.

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This species is very local. In his 'Irish Testacea' Capt. Brown notices "one specimen [procured] on a dry mud wall near Cloononey," p. 529. About the roots of trees in the demesne of Woodlands near Dublin, I have, accompanied by Mr. R. Ball, obtained specimens, the shells of all of which, adult as well as immature, were like those sent me from other localities, and according to the observations of authors, covered with earth. From La Bergerie, Portarlington, I have been favoured with specimens by the Rev. B. J. Clarke. In March, 1837, it was supplied me in quantity from Larne, county Antrim, by Mr. James Manks. From the Falls of Clyde (Scotland), I have specimens collected by W. H. Harvey, Esq.

Animal, rather dark grey above, lighter towards the disk, and when viewed under a lens appearing closely marked all over the back and sides, with darker spots and markings so disposed as to render it very beautiful; disk very pale grey. Tentacula cylindrical, stout, and club-shaped; the upper of ordinary length, the lower short.

2. *B. acutus*, "Brug." Drap. p. 77. pl. 4. f. 29, 30; Gray, Man. p. 185. pl. 6. f. 67.

B. fasciatus, *Turt. Man.* p. 84. f. 67.

Turbo fasciatus, *Penn. Mont.* p. 346. t. 22. f. 1.

This is a local species, but found from north to south—from the neighbourhood of the Giant's Causeway to Youghal. It is especially common on marine sand-banks and pastures, but in remote inland localities is likewise native. It would seem to be more common to the eastern than the western portion of the island, but in the latter it has occurred to me about Ballyshannon, county of Donegal. I have occasionally observed this species inhabiting the crevices of walls at a considerable height, as those of Howth church, county Dublin. M. Michaud remarked on some Irish specimens of this most variable species which I contributed to his collection, that they were the *B. articulatus*, Lam.

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name, as last quoted, but no locality is assigned to it. Having written to Capt. Brown on the subject, he very kindly supplied me with the following note under date of April 9, 1840:—"I found the *Bulimus montanus* on the sloping banks below an old castle about four miles from Maryborough, Queen's county, the name of which I cannot remember: it is, however, on the road between Maryborough and Stradbally. I also found it on a limestone gravel ridge near Maryborough, not a mile distant. I afterwards met with it among debris on the mountains of Mourne, close to the sea-shore." As *B. Lackamensis* and *B. obscurus* differ little from each other, except in size, and as the period when the localities just alluded to were visited by this author is now so far distant, it would seem to me, judging from other circumstances connected with the species, that a large variety of *B. obscurus* may not improbably be the shell thus referred to.

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Is common, and generally distributed over Ireland. From under stones on the dry mountain side at Wolfhill, near Belfast, and on sea-side pastures I have obtained a few specimens of a handsome variety, of a pale grey colour and transparent, with a white peristome; in such localities this shell does not present to the same degree the rich amber colour and brilliant polish which it does in woods or shady places. The animal is blackish. From an examination of the food contained in seven Starlings (*Sturnus vulgaris*), shot at different places in the north of Ireland, from the month of December to March, during a mild winter, it would appear either that the *B. lubricus* is a special favourite, or that its haunts are similar to those of the bird; as six of the Starlings, in addition to *Helices* and other food, contained specimens of this shell varying from five to thirteen in number.

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riety in form and colour; the toothless var. not unfrequently occurs, and on a sea-bank at Belfast Bay I once obtained a specimen with two teeth †, but differing in no other respect from the ordinary shell, I cannot consider it otherwise than an accidental variety of *P. umbilicata*. Specimens whitish and opaque, like "dead shells," not unfrequently occur containing the living animal. Occasionally in the north, at the South Islands of Arran, and about the lakes of Killarney, I have procured a few individuals of a crystalline transparency, the elegance of their appearance being much enhanced by the pure white margin of the peristome. The animal is of a very pale grey colour.

2. *Pupa Anglica*, Alder. Gray, *Man.* p. 195. pl. 7. f. 82.

Vertigo Anglica, Fer. *Turt. Man.* p. 102. f. 82.

This species, considered peculiar to England when described by Ferussac, and in the very latest work treating of the British land Mollusca having only the localities—"north of England, Northumberland, Lancashire," attributed to it, is found in the north and south, in the east and west of Ireland; but at the same time is by no means general, or, except in particular spots, plentiful, like *P. umbilicata*. Under stones, on marsh plants, in wet moss, &c. it harbours. I first met with it in June, 1833, in the county of Londonderry, at the side of the river Bann near its junction with the ocean; in numerous localities throughout Down and Antrim, and in the demesne of Florence-court, county Fermanagh, it since occurred to me; in the west on the mountain of Benbulbin in Sligo; in the south about O'Sullivan's cascade, at the lower lake of Killarney; and in the east in the Glen of the Downs, county Wicklow. Mr. W. H. Harvey obtained this species "near Ballitore and on the sand-hills, Miltown Malbay," but notes it as very rare. In the collections of Mr. T. W. Warren and Mr. Edw. Waller of Dublin, are specimens procured by the former gentleman at Ardmore (county Waterford), and in the neighbourhood of the metropolis; and by the latter at Annahoe, county Tyrone—near Portarlington it is found by the Rev. B. J. Clarke, and by the Rev. T. Hincks near Cork, where it is "abundant in wet moss." In England I have collected the *P. Anglica* at Twizel House, Northumberland; in Scotland about Ballantrae, Ayrshire.

The shells of this *Pupa* commonly vary in colour from pale greyish brown to a deep reddish shade of this colour, and are rarely of a glassy transparency: the margin of the mouth and teeth are generally of the colour of the shell, but sometimes pure white. Mr. Gray having had the opportunity of consulting the work only of M. Michaud, refers his *Pupa tridentalis* with doubt to this species, but from having been favoured by its describer with specimens of this shell from the neighbourhood of Lyons, I can state with certainty that it is en-

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Is common, and although not generally diffused, is found from the extreme north to south, and east to west of Ireland. It is particularly partial to the sand-hills or pastures bordering the coast, and to marine islets, as those in Strangford lough—in the inland parts of the country it likewise occurs. The tooth is rarely visible: specimens containing the living animal are not unfrequently of a whitish colour‡.

9. VERTIGO, Müller.

1. *V. edentula*, Alder. Gray, Man. p. 199. pl. 7. f. 80; Rossmassler, x. p. 28. tab. 49. f. 646.

Pupa edentula, Drap. p. 59. pl. 3. f. 28, 29; Turt. Man. p. 99. f. 80.

This species is found from north to south of Ireland. Since September, 1832, I have met with it in numerous localities throughout the counties of Down and Antrim, at the Glen of the Downs in Wicklow, and in shell-sand from Portmarnock (county Dublin). Anahoe, county Tyrone, Mr. E. Waller—La Bergerie, Queen's-county, Mrs. Patterson (of Belfast)—neighbourhood of Cork, Rev. T. Hincks. The typical form of *V. edentula* I generally find under stones; the elongated and cylindrical variety in woods—in autumn and winter this latter is most readily obtained on the fallen leaves of trees; in summer, on the under side of the fronds of ferns (*Aspidii*, &c.), the shell and plant, though the naturalist only will perceive the former, being in beauty equally attractive. This elongate variety has seven and occasionally even eight volutions, and attains the length of $1\frac{1}{2}$ line: when of this size, the animal §, so very minute relatively to the shell, has a grotesque appearance when bearing this along, which is carried singularly erect, not more out of the perpendicular than the leaning tower at Pisa! This variety, judging from descrip-

† The larger wood-cut at p. 197, representing this species magnified, is the most characteristic in the work. Rossmassler's figure 323 is particularly good.

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2. *Vertigo pygmæa*, Fer. Gray, Man. p. 201. pl. 7. f. 83; Turt. Man. p. 103. f. 83.

Pupa pygmæa, Drap. p. 60. pl. 3. f. 30, 31.

This is the most widely distributed species of *Vertigo* over Ireland, occurring throughout the country. It is generally found but sparingly where it does prevail, and is most easily procured under stones, both in dry and wet situations, from the sea-shore to a high elevation in the mountains. The usual number of teeth is four, of which one is central on the upper or body portion.—On a sea-bank, Belfast bay, I once met with a *Vertigo* resembling the ordinary *V. pygmæa* in every respect, but with the addition of a tubercle, about the size of one of the teeth, placed *outside* the mouth and near the junction of the outer lip with the body volution. Animal dark lead colour, or rather blackish-gray above, disk blackish-gray anteriorly, becoming suddenly paler, so as to be nearly white at the opposite extremity.

3. *Vertigo substriata*, Alder. Gray, Man. p. 202. pl. 7. f. 84.

V. sexdentata, Turt. Man. p. 103. f. 84.

This species, though rare, has a wide distribution in Ireland. In the glen at Holywood House (county Down), I obtained specimens in 1832, and subsequently in shell-sand from Portmarnock (county Dublin). Mr. W. H. Harvey gives as habitats “Miltown Malbay, and near Limerick—rare at Ballitore (county Kildare).” In the neighbourhood of Ballantrae, Ayrshire, this *Vertigo* has occurred to me. Reference alone to Montagu's specimens would seem to prove whether his *Turbo sexdentata*, p. 337, be this species, as his description is partly applicable to this (in number of teeth), and partly to *V. palustris* (in being smooth)—the locality in which it was found would be more suitable to the latter: the figure in ‘Testacea Britannica,’ throws no light upon the subject.

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as its name denotes, is an inhabitant of the marsh: it nevertheless seems invariably to be not only free from dirt, but presents a high polish. By the Rev. B. J. Clarke the *V. palustris* has been obtained near Portarlington, and by Mr. Edw. Waller at Finnoe, Tipperary. In England I have procured it near Twizel, Northumberland, and in Scotland in several localities around Ballantrae. Mr. Gray, in the Introduction to his edition of Turton's Manual, mentions the *V. palustris* and *V. angustior* to "have been only yet recorded as found near London and in the west of England," p. 37—in 1834 I published both species as indigenous to Ireland. Phil. Mag. 1834, p. 300. Reference to this communication, though a mere list of species of land and freshwater Mollusca previously unrecorded as Irish, would have shown that several species noticed in the Manual as local, have a considerable range of distribution.

5. *Vertigo pusilla*, "Müll." Jeffreys, Linn. Trans. vol. xvi. p. 361. Gray, Man. p. 205. pl. 7. f. 86.

V. heterostropha, Leach. Turt. Man. p. 105. f. 86.

Pupa *Vertigo*, Drap. p. 61. pl. 3. f. 34, 35.

Is very rare, but has been found in the north-east and west of the island. From under a stone on a dry bank in Colin Glen, near Belfast, I obtained a specimen in 1832, as Mr. Hyndman did in an adjacent glen some time afterwards; in shell-sand from Portmarnock I have detected it, and Mr. Harvey has supplied me with a specimen from Miltown Malbay, where he states the species is very rare. A shell from Flanders, favoured me by M. Michaud, under the name of "*Pupa Vertigo*, Drap. (*Vert. pusilla*, Mich.)," is identical with that under consideration.

6. *Vertigo angustior*, Jeffreys. Linn. Trans. vol. xvi. p. 361; Gray, Man. p. 205.

Turbo *Vertigo*, Mont. p. 363. t. 12. f. 6.

In 1833 I was favoured by Mr. W. H. Harvey with specimens of *Vertigo* labelled "*V. heterostropha*, two species, from the sand-hills Miltown Malbay, the smaller common, the larger very rare." The smaller are of this species, which has always seemed to me distinct from the *V. heterostropha* of Drap. and of Turton's Manual. A comparison of Montagu's Turbo *Vertigo* (tab. 12. f. 6.) with the *V. heterostropha* in the works just mentioned, will show the obvious difference. To Mr. Jeffreys the merit is due of clearly distinguishing these species. Since 1834, when this *Vertigo* was published as indigenous to Ireland, I have not obtained any more information respecting it.

10. BALÆA, Gray.

1. *B. perversa*, Flem. Gray, Man. p. 207. pl. 6. f. 70.

B. fragilis, Gray. Turt. Man. p. 87. f. 70.

Pupa *fragilis*, Drap. p. 68. pl. 4. f. 4.

Turbo *perversus*, Mont. p. 355. t. 11. f. 12.

This species is generally distributed over the island. Its favourite

as its name denotes, is an inhabitant of the marsh: it nevertheless seems invariably to be not only free from dirt, but presents a high polish. By the Rev. B. J. Clarke the *V. palustris* has been obtained near Portarlington, and by Mr. Edw. Waller at Finnoe, Tipperary. In England I have procured it near Twizel, Northumberland, and in Scotland in several localities around Ballantrae. Mr. Gray, in the Introduction to his edition of Turton's Manual, mentions the *V. palustris* and *V. angustior* to "have been only yet recorded as found near London and in the west of England," p. 37—in 1834 I published both species as indigenous to Ireland. Phil. Mag. 1834, p. 300. Reference to this communication, though a mere list of species of land and freshwater Mollusca previously unrecorded as Irish, would have shown that several species noticed in the Manual as local, have a considerable range of distribution.

5. *Vertigo pusilla*, "Müll." Jeffreys, Linn. Trans. vol. xvi. p. 361. Gray, Man. p. 205. pl. 7. f. 86.

V. heterostropha, Leach. Turt. Man. p. 105. f. 86.

Pupa *Vertigo*, Drap. p. 61. pl. 3. f. 34, 35.

Is very rare, but has been found in the north-east and west of the island. From under a stone on a dry bank in Colin Glen, near Belfast, I obtained a specimen in 1832, as Mr. Hyndman did in an adjacent glen some time afterwards; in shell-sand from Portmarnock I have detected it, and Mr. Harvey has supplied me with a specimen from Miltown Malbay, where he states the species is very rare. A shell from Flanders, favoured me by M. Michaud, under the name of "*Pupa Vertigo*, Drap. (*Vert. pusilla*, Mich.)," is identical with that under consideration.

6. *Vertigo angustior*, Jeffreys. Linn. Trans. vol. xvi. p. 361; Gray, Man. p. 205.

Turbo *Vertigo*, Mont. p. 363. t. 12. f. 6.

In 1833 I was favoured by Mr. W. H. Harvey with specimens of *Vertigo* labelled "*V. heterostropha*, two species, from the sand-hills Miltown Malbay, the smaller common, the larger very rare." The smaller are of this species, which has always seemed to me distinct from the *V. heterostropha* of Drap. and of Turton's Manual. A comparison of Montagu's Turbo *Vertigo* (tab. 12. f. 6.) with the *V. heterostropha* in the works just mentioned, will show the obvious difference. To Mr. Jeffreys the merit is due of clearly distinguishing these species. Since 1834, when this *Vertigo* was published as indigenous to Ireland, I have not obtained any more information respecting it.

10. BALÆA, Gray.

1. *B. perversa*, Flem. Gray, Man. p. 207. pl. 6. f. 70.

B. fragilis, Gray. Turt. Man. p. 87. f. 70.

Pupa *fragilis*, Drap. p. 68. pl. 4. f. 4.

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This species is generally distributed over the island. Its favourite

abode is on the stems and branches of trees, where it shelters itself beneath the loose bark or in its crevices; and on trees whose bark from smoothness will not afford it shelter, this *Balæa* lurks in the mosses and lichens which adorn them—in the tufts of these cryptogamous plants I have remarked it buried, whilst the *Vertigo edentula* displayed itself at the outside.

11. CLAUSILIA, Drap.

1. *C. bidens*, Drap. p. 68. pl. 4. f. 5—7; Gray, Man. p. 212. pl. 5. f. 53.

C. laminata, *Turt. Man.* p. 70. f. 53.

Turbo laminatus, *Mont.* p. 359. t. 11. f. 4.

Is a rare and local species in Ireland. The first native specimens I have seen were in the collection of Mr. T. W. Warren of Dublin, who had procured them in Belamont Forest near Coothill, county Cavan. In Sept. 1837 I had the gratification of seeing numbers of this fine *Clausilia*, after heavy rain ascending the stems of stately trees in the demesne of Florence Court, county Fermanagh, the seat of the Earl of Enniskillen. At Dovedale, in Derbyshire, I have met with it.

2. *Clausilia nigricans*, Jeffreys. Gray, Man. p. 217. pl. 5. f. 58.

C. rugosa, *Drap.* p. 73. pl. 4. f. 19, 20; *Turt. Man.* p. 74. f. 58.

Turbo bidens, *Mont.* p. 357. t. 11. f. 7.

Is very commonly distributed over Ireland and the surrounding islands. It is an extremely variable species in being more or less ventricose, in the striæ being obscure or prominent, in the form of the mouth, and occasionally even in the number of internal lamellæ—the largest specimen I have found in the neighbourhood of Belfast is $7\frac{1}{2}$ lines in length, and has thirteen volutions; several others of the usual length of 6 lines have likewise this number. The colour commonly varies from a very pale greyish-white to deep reddish-brown; very rarely specimens of a glassy transparency occur, and in such of these as I have found, the animal was equally colourless. To Mr. Gray, Mr. Alder, and Mr. Forbes, I have shown the specimens differing as here described, and they agree with me that they must all be considered *C. nigricans*†.

Fam. 4. "AURICULADÆ."

Gen. 1. CARYCHIUM, Müller.

1. *C. minimum*, Müll. Gray, Man. p. 221. pl. 7. f. 77; *Turt. Man.* p. 96. f. 77.

Auricula minima, *Drap.* p. 57. pl. 3. f. 18, 19.

Turbo Carychium, *Mont.* p. 339. t. 22. f. 2.

This minute species is commonly distributed over Ireland, and

† Since the above was written the fine work of Rossmassler has been consulted, in which numerous varieties of *C. nigricans* or "*C. rugosa*" are admirably represented. Icon. part 7. p. 23. fig. 477—487. The *C. obtusa*, Pfeiffer, which is common in Ireland, is here included (and judiciously I consider) as a var. of *C. rugosa*.

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Gen. 2. ACME, Hartmann.

1. *A. fusca*, Gray, Man. p. 223. pl. 6. f. 66.

Auricula lineata, Drap. p. 57. pl. 3. f. 20, 21.

Bulimus lineatus, Turt. Man. p. 83. f. 66.

Turbo fuscus, Boys and Walker. Mont. p. 330.

Is rare in Ireland, but is widely distributed, being found over the island. Mr. W. H. Harvey was the first to find and distinguish this species as a native—he notes it as not uncommon on the sand-hills in Miltown Malbay, where in 1826 he procured both the ordinary form and the variety with the spires reversed. This shell has been procured by Mr. Hyndman and myself in various localities in the counties of Down and Antrim, but not more than three or four individuals have been obtained on any one occasion. I have more than once found this shell, containing the living animal, under stones on bare clayey banks, in which situations the only other mollusk met with was *Helix chrystallina*. At Annahoe (county Tyrone), Mr. Edw. Waller has obtained the *A. fusca* (both a. and b. Turton, p. 83.); as Mr. T. W. Warren has done in the neighbourhood of Dublin, and the Rev. B. J. Clarke at La Bergerie, Queen's county. The Rev. T. Hincks of Cork, favours me with two southern habitats—Ballinhassig Glen (county Cork) and near Mucruss, Killarney (county Kerry).

Fam. 5. LIMNÆADÆ, Jeffreys.

Gen. 1. LIMNEUS, Drap.

1. *L. auricularius*, Drap. p. 49. pl. 2. f. 28, 29, 32; Gray, Man. p. 232. pl. 9. f. 100; Turt. Man. p. 117. f. 100; Rossm. Icon. 1. 98. t. 2. f. 55.

Helix auricularia, Mont. p. 375. t. 16. f. 2.

Through deference to those who have paid much more attention to the subject than myself, I note this *Limneus* under the head of a distinct species, although I am disposed to believe that it is only an extreme form of *L. pereger*. The *L. auricularius*, as figured in both editions of Turton's Manual, and by Draparnaud, is not very unfrequent in Ireland, but of the extremely expanded form represented by Rossmassler is very rare, and from one or two still ponds only, abounding in subaquatic plants of various species, have I seen it. Pfeiffer's figure (part 1. t. 4. f. 17, 18.) is somewhat intermediate between those just mentioned, and corresponding to it I have procured specimens. All forms, from the ordinary *L. pereger* to the *L. auricularius*, it seems to me may be closely traced blending into each other—reference to the figures in many works will be found to present various forms, though in all the aperture is greatly expanded. Some specimens of *L. auricularius*, which I collected in Stow Pool,

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Lichfield, in July, 1836, are more distinct than any which I have seen represented; the spire is more minute, and the upper part of the outer lip goes off from the body of the shell in the form of a straight line; but of all the individuals obtained on this occasion no two are precisely alike, but vary from the extreme form described to the *L. ovatus*, Drap.

2. *Limneus pereger*, Drap. p. 50. pl. 2. f. 34—37; Gray, Man. p. 233. pl. 9. f. 101†; Turt. Man. p. 118. f. 101. A very rare form.

Helix peregra, Mont. p. 373. t. 16. f. 3.

This species, presenting endless variety, is abundant throughout the waters of Ireland, from the smallest drain to the vast expanse of Lough Neagh. Some of the forms which have been considered as distinct species may be enumerated as occurring in this country, as *L. ovatus*, Drap., *L. intermedia*, Michaud (Comp. pl. 16. f. 17, 18.), *L. marginata*, Mich. (Id. f. 15, 16.), *L. lineatus*, Bean, *L. acutus*, Jeffreys—of these two last I judge from comparison of authentic specimens, the former favoured me by Mr. Alder, the latter by their describer. One variety seems to require especial notice—the *Gulnaria lacustris*, Leach. On the shores of Loughs Neagh and Earn I have collected specimens identical with those so named by Dr. Leach in the British Museum, and which are from the lakes of Cumberland—their donor General Bingham. It would seem to be the same form which Capt. Brown figures under the name of “*Lymnæa lacustris*, Brown’s MSS.,” and states to have been found by him in Loch Leven, Kinross-shire. Illustrations Brit. Conch., pl. 42. f. 24, 25. From lakes in various parts of Ireland I possess this form, which, from its extreme delicacy, I look upon as an inhabitant of still water, and from its rare occurrence, except when cast ashore, of deep water also. The specimens, which containing the living animal, have occasionally been found in shallow water, have I presume been driven thence in storms, to which conclusion I am led by having once at Lough Earn, and frequently at Lough Neagh, looked in vain for a living individual with a shell of this form at the edge of their waters, though plenty of the more common forms of *L. pereger* were there. The variety under consideration is intermediate in form between the typical *L. pereger* and *L. glutinosus*, with a short spire and ample aperture; shell very thin, longitudinally striated; striæ regular, frequent, and strongly marked; about one in thirty of the specimens examined somewhat spirally cut, “like the facets of glass”; slight fold on the pillar lip; an epidermis-like covering, of a dull greenish-yellow colour. By the chief cultivators of this branch of natural history in Great Britain, to whom I have sent this shell, it was considered a particularly well-marked variety‡, and M.

† The wood-cut at p. 235 is much more characteristic than figure 101, which is that of the first edition repeated. I have shells similar to f. 101, from the vicinity of Belfast.

‡ Mr. Gray remarks—“The *Gulnaria lacustris* of Leach is very peculiar, from the erosion of its tips, probably arising from its locality, the lakes of

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‡ Mr. Gray remarks—“The *Gulnaria lacustris* of Leach is very peculiar, from the erosion of its tips, probably arising from its locality, the lakes of

Lichfield, in July, 1836, are more distinct than any which I have seen represented; the spire is more minute, and the upper part of the outer lip goes off from the body of the shell in the form of a straight line; but of all the individuals obtained on this occasion no two are precisely alike, but vary from the extreme form described to the *L. ovatus*, Drap.

2. *Limneus pereger*, Drap. p. 50. pl. 2. f. 34—37; Gray, Man. p. 233. pl. 9. f. 101†; Turt. Man. p. 118. f. 101. A very rare form.

Helix peregra, Mont. p. 373. t. 16. f. 3.

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3. *Limneus involutus*, Harvey.

Amphipeplea involuta, Gray, *Man.* p. 245. pl. 12. f. 147.

This *Limneus* so remarkable in form was discovered by Wm. H. Harvey, Esq. in a small lake on Cromaglaun Mountain near the lakes of Killarney. A description of it will be found in the *Annals Nat. Hist.* for March 1840, p. 22. Its specific character is—spire sunk within the outer whorl; aperture very large, extending to the apex.

4. *Limneus stagnalis*, Drap. p. 51. pl. 2. f. 38, 39; Gray, *Man.* p. 236. pl. 9. f. 104; Turt. *Man.* p. 121. f. 104; Rossm. f. 49.

Helix stagnalis, *Mont.* p. 367. t. 16. f. 8.

This, the largest European *Limneus*, though by no means generally distributed, occurs in every portion of the island. It differs very much in size, according to locality; mature specimens, which I have found in the cold water of Lough Neagh, where barren of sub-aquatic plants, did not exceed one inch in length, whereas in drains in which such plants abound, they attain double this size.

A *Limneus* collected by my friend Richard Langtry, Esq., of Fort William, near Belfast, when on a tour through Upper Canada in 1835, seems identical with *L. stagnalis*. It differs from the ordinary form only in tapering rather more towards the apex, and in the second largest volution being a little more tumid; but in these respects an extensive series of Irish specimens before me differ very much. The American specimens were taken in the river connecting Buckhorn with Pigeon Lake.

5. *Limneus palustris*, Drap. p. 52. pl. 2. f. 40—42. and pl. 3. f. 1, 2; Gray, *Man.* p. 239. pl. 9. f. 107; Turt. *Man.* p. 123. f. 107; Rossm. f. 51, 52.

Helix palustris, *Mont.* p. 370. t. 16. f. 10.

Common, and generally distributed over Ireland—in size, form, and colour very variable. In the river Bann, near Kilrea, I have procured specimens of the ordinary colour, but with the addition of spiral narrow white bands—in some waters the different species of *Limnei*, &c., are so marked. A shell differing from the *L. palustris* in general proportion (being much shorter relatively to its breadth) and in colour (generally of a uniform pale yellow), is common to

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Lough Neagh and other lakes in Ireland: it is found attached to stones at the edge of the water, and where the adjacent bottom is stony, with very little vegetation—under similar circumstances it has also occurred to me in the first-named locality. It is identical with the var. β . of Mr. Jeffreys, who has favoured me with specimens from Battersea, near London. The small size, different colour, and freedom from all adventitious matter, I should be disposed to attribute to the colder water and less food in such localities, than in the ponds and ditches, in which the ordinary form prevails.

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L. minutus, Drap. p. 53. pl. 3. f. 5—7.

L. fossarius, Turt. Man. p. 124. f. 108.

Helix fossaria, Mont. p. 372. t. 16. f. 9.

Is generally distributed over Ireland. It inhabits drains, ditches, &c., like the *L. palustris*; but in moist spots, and about springs, at a considerable elevation in the northern mountains†, is likewise found, and is here always of a very small size. In July, 1833, when accompanied by Mr. Hyndman, I remarked many of this species alive, and adhering to stones which lay dry upon the shore of Lough Neagh, far above the summer level of its waters‡—these were of uniform size, very small, and when containing the living animal, of a very dark reddish brown colour. Many varieties of the *L. truncatulus* have occurred to me in Ireland; among them was one very much elongated, and another with regular longitudinal striæ, the latter of which is well remarked by Dr. Turton, to be “very elegant.” Man. p. 125.

7. *Limneus glaber*, Gray, Man. p. 242. pl. 9. f. 106.

Limneus elongatus, Drap. p. 53. pl. 3. f. 3, 4; Turt. Man. p. 122. f. 106.

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I have not seen any Irish specimens of this *Limneus*, which is thus noticed in the supplement to Mr. Jeffreys's paper in the Linnean Transactions, vol. 16. p. 520: “Ireland, Rev. James Bulwer.” On inquiry of Mr. Bulwer, he stated that the shell so noticed was considered by him but a variety of *L. palustris*. By a letter from Mr. Jeffreys, dated June 8, 1840, I learn that “*L. elongatus* was mentioned as Irish on the authority of the late Dr. Goodall, who stated that he had received specimens from Mr. Bulwer.” Mr. Jeffreys adds, “I have, however, two or three undoubted specimens among a collection of Irish shells, which I purchased about three months ago from Mr. John Humphreys of Cork—the tray which contained them was labelled ‘Cork.’” From Mr. Humphreys I learn that he

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2. ANCYLUS. "Geoffroy."

1. *A. fluviatilis*, Mull. Drap. p. 48. pl. 2. f. 23, 24; Gray, Man. p. 249. pl. 10. f. 125; Turt. Man. p. 140. f. 125.

Patella fluviatilis, Mont. p. 482.

This species is distributed over the island, and is equally found attached to stones in the mountain torrent, the river, and the still waters of the lake. The var. described by Montagu (p. 483.) as being strongly striated, and by Jeffreys (p. 390.) as being pellucid, &c., I find upon the first stones wet by mountain springs, on their gushing from the earth. All the specimens from these localities are much smaller than those found in still water, and coated with green vegetable matter, which is entirely adventitious, and may be seen in like manner coating the little prominences of the stone to which the *Ancylus* adheres—this and the animal being removed, the shell is crystalline. Under the name of "*Ancy. fluviatilis*, Drap. var. montana," M. Michaud has favoured me with specimens from the Pyrenees, quite identical with the var. just noticed, as it need hardly be remarked are others from France with the ordinary form.

I had often observed that beautiful and graceful bird, the Gray Wagtail (*Motacilla boarula*), feeding about the mountain springs, but was not aware of its propensity for mollusca, until on opening the stomach of one without knowing where the specimen had been killed, I found it to be filled with shells of this species, all of which being of the var. *a.*, afforded evidence whence they had been procured.

Animal blueish-gray beneath; portion which comes in contact with the shell blackish-green—of six specimens, which I once kept in a dry chip box for eighteen hours, two perfectly recovered on being immersed in water.

2. *Ancylus lacustris*, Mull. Drap. p. 47. pl. 2. f. 26, 27; Turt. Man. p. 141. f. 126.

Vetelia lacustris, Gray, Man. p. 250. pl. 10. f. 126.

Patella lacustris, Mont. p. 484.

This species, although rare, has been met with in the north, east, and west of Ireland, in still and gently flowing waters. It was noticed by Captain Brown in his 'Irish Testacea' as "plentiful in a mill-race a mile below Naas." By the late Mr. Templeton's MS. I find that the species had been previously observed by him "on

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Animal blueish-gray beneath; portion which comes in contact with the shell blackish-green—of six specimens, which I once kept in a dry chip box for eighteen hours, two perfectly recovered on being immersed in water.

2. *Ancylus lacustris*, Mull. Drap. p. 47. pl. 2. f. 26, 27; Turt. Man. p. 141. f. 126.

Vetelia lacustris, Gray, Man. p. 250. pl. 10. f. 126.

Patella lacustris, Mont. p. 484.

This species, although rare, has been met with in the north, east, and west of Ireland, in still and gently flowing waters. It was noticed by Captain Brown in his 'Irish Testacea' as "plentiful in a mill-race a mile below Naas." By the late Mr. Templeton's MS. I find that the species had been previously observed by him "on

† *Limneus glutinosus*—*Amphipeplea glutinosa*.

Is enumerated in Turton's 'Catalogue of Irish Shells,' but without any locality being named. Mr. Gray notes it as found "in stagnant ditches, England, Ireland." Man. p. 244.—Mr. Gray informs me that he mentioned the species as Irish from specimens sent to the British Museum many years ago, by a gentleman then resident in Ireland, and who had contributed a number of species from this country to that collection; but of the *L. glutinosus* having been one of those so derived there is now no certain record.

Potamogeton, &c., in the drains of the bog-meadows near Belfast." Between the fourth and fifth locks of the Lagan canal, a few miles from this town, I have, at the end of September, procured many specimens, all of which were on the under side of the leaves of the yellow water-lily (*Nuphar lutea*) and great water-plantain (*Alisma Plantago*)—Pond in the demesne at Moira, county Down, Mr. Hyndman—Near Limerick, Mr. W. H. Harvey—Beechwood, near Portmarnock, county Dublin, Mr. T. W. Warren—Glasnevin Botanic Garden, Dublin, Dr. Coulter—Finnoe, county Tipperary, Mr. Edward Waller.

3. *PHYSA*, Drap.

1. *P. fontinalis*, Drap. p. 54. pl. 3. f. 8, 9; Gray, Man. p. 251. pl. 9. f. 110; Turt. Man. p. 127. f. 110.

Bulla fontinalis, *Mont.* p. 226.

Is common, and generally distributed over Ireland, occurring on aquatic plants in stagnant and gently flowing water. It is subject to considerable variety.

2. *P. hypnorum*, Drap. p. 55. pl. 3. f. 12, 13; Turt. Man. p. 128. f. 113.

Aplexus hypnorum, *Flem.*; Gray, *Man.* p. 255. pl. 9. f. 113.

Bulla hypnorum, *Mont.* p. 228.

Although much less common than *P. fontinalis*, is generally diffused over the island, and found as frequently in very shallow, as in deep water.

4. *PLANORBIS*, Muller.

1. *P. corneus*, Drap. p. 43. pl. 1. f. 42—44; Gray, *Man.* p. 258. pl. 8. f. 95; Turt. *Man.* p. 112. f. 95.

Helix cornea, *Mont.* p. 448.

Has been found only within a very limited portion of the island. It still prevails in the locality recorded by Capt. Brown—near Maynooth, in the county of Kildare. From about Naas in the same county I have been supplied with specimens by Mr. R. Ball; and by the Rev. B. J. Clarke, with some obtained by him near Lea Castle, Queen's county.

2. *Planorbis albus*, Mull. Gray, *Man.* p. 259. pl. 8. f. 97; Turt. *Man.* p. 114. f. 97.

P. hispidus, *Drap.* p. 43. pl. 1. f. 45—47.

Helix alba, *Mont.* p. 459. t. 25. f. 7.

Prevails generally over Ireland. Specimens of *P. glaber*, Jeffreys, which I owe to the kindness of their describer, seem to me (as to Mr. Alder) identical with *P. albus*.

3. *Planorbis levis*, Alder. Gray, *Man.* p. 261. pl. 12. f. 148.

Is found in the north-east of the island. Early in the winter of 1832 I obtained a number of this species on aquatic plants (especially *Callitriche aquatica*), with *P. imbricatus*, in a small pond at

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4. *Planorbis imbricatus*, Mull. Gray, Man. p. 261. pl. 8. f. 94;
Turt. Man. p. 111. f. 94; Drap. p. 44. pl. 1. f. 49—51.
P. cristatus, Drap. p. 44. pl. 2. f. 1—3.
Helix nautilus, Mont. p. 464. t. 25. f. 5.

This handsome and well-marked species is known to me as occurring throughout Ireland, with the exception of the extreme south, where however there is little doubt that it exists. It is very variable in form—the varieties 1 and 2, and the "monstrosity with the volutions detached, and raised above each other" (Turt. Man.), I have procured on the same plant. The entire animal, together with the tentacula, are of a pale gray colour.

5. *Planorbis carinatus*, Mull. Gray, Man. p. 262. pl. 8. f. 89;
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P. marginatus, *Drap.* p. 45. pl. 2. f. 11, 12, 15; *Gray, Man.* p. 265. pl. 8. f. 87, 88, 90; *Turt. Man.* f. 87.

This species prevails in every quarter of the island, but is not generally distributed. Attached to stones at Ram's Island, Lough Neagh, I find a small variety †, about half the ordinary size, and which is concave beneath, with the keel obscure—Mr. Alder remarked on some of these which I had the pleasure of adding to his collection in 1835—"Turton's *P. rhombæus*, of which he sent me specimens, is the same thing in a younger state." Mr. Jeffreys, in a letter dated Oct. 2, 1838, when acknowledging the receipt of the Lough Neagh shell, observed that he considered it distinct from *P. marginatus*, and that from a similar shell previously found at Cardiff, he had named the form *P. inæqualis*. It is to a distorted individual of the *P. marginatus*, found in a pond at the College Botanic Garden, Dublin, that Capt. Brown applied the name of *Helix cochlea* (*Irish Test.* p. 528. pl. 24. f. 10.), and Turton that of *Helix terebra* (*Conch. Dict.* p. 62. f. 55.)—Mr. O'Kelly, to whom the shell belongs, always considered it *P. marginatus*, and as such noticed it in the Dublin edition of Pennant's *Brit. Zool.*, p. 363. The Rev. T. Hincks writes me from Cork that "the var. of *Plan. marginatus* with the volutions elevated into a spiral cone was once taken in Ballypheane bog." I have myself met with monstrous forms of several of the native species of *Planorbis*.

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The species which my correspondents (chiefly judging from the descriptions and figures in Turton's Manual) have considered as the *P. vortex* and *P. spirorbis*, are noted as generally common in Ireland—these shells merge so into each other that I was in the habit of putting all that were collected throughout the north together. On comparing these with examples of "*P. spirorbis*" from the neighbourhood of Newcastle, and of "*P. vortex*" from that of London, presented me by Mr. Alder, I find that although some of them are as large as the *P. vortex*, have seven volutions, and a carinated edge to the lower one, that they are not of the extreme form designated by this name, and consequently come under *P. spirorbis*; so likewise do a number of specimens from the neighbourhood of Portarlington sent me by the Rev. B. J. Clarke—those from the river Shannon, favoured me by the Rev. C. Mayne of Killaloe, may

† The size is, I conceive, attributable to the coldness of the water and scarcity of subaquatic plants.

be placed under *P. vortex*, as may those also collected at Lough Gounagh, county Longford, by my friend R. Callwell, Esq. of Dublin. Is the more prominent keel, with other differences necessarily attendant on it, as form of mouth, &c., sufficient for specific distinction between *P. vortex* and *P. spirorbis*? Under *Planorbis disciformis* Mr. Alder has well remarked, that "the degree of carination is so very variable in different individuals of the same species, that it is rather fallacious as a distinguishing character." Mag. Zool. and Bot. vol. ii. p. 113.

Specimens of *P. compressus*, Michaud, from Lorraine, with which I have been favoured by their describer, are identical with those of *P. vortex* before noticed as from Mr. Alder. Examples of *P. leucostoma*, Michaud, with which I have been presented by this most liberal author, differ only from Mr. Alder's *P. spirorbis* in having a white rim within the mouth—on this subject see Supplement to Mr. Alder's Paper in the Newcastle Transactions, and Mr. Gray's edition of Turton's Manual, p. 267; in this work *P. leucostoma*, Mich., is referred to *P. vortex*, but if this is to be considered distinct from *P. spirorbis*, to the latter *P. leucostoma* must be referred.

9. *Planorbis nitidus*, Mull. Gray, Man. p. 268. pl. 8. f. 93.

P. fontanus, Turt. Man. p. 110. f. 93.

P. complanatus, Drap. p. 47. pl. 2. f. 20—22.

Helix fontana, Mont. p. 462. t. 6. f. 6.

Although somewhat rare, this species is distributed over Ireland. On some living specimens taken near Belfast in Dec. 1834, by Mrs. Hincks, and kindly sent to me, the following note was made—"tentacula moderate, or rather short and uniform in colour with the body of the animal, which changes with age, the adult (with shell $2\frac{1}{2}$ lines in diameter) being black; younger individuals pale gray—the shells of the latter are much the more transparent." These animals seemed indifferent which side of the shell was uppermost, and when undisturbed often moved along with what is termed the under side next the surface of the water.

10. *Planorbis contortus*, Mull. Gray, Man. p. 270. pl. 8. f. 96; Turt.

Man. p. 113. f. 96; Drap. p. 42. pl. 1. f. 39—41.

Helix contorta, Mont. p. 457. t. 25. f. 6.

Like the *P. albus*, generally distributed over Ireland, but of more frequent occurrence, and in greater quantity where found than that species.

Sect. II. OPERCULATA.

Fam. CYCLOSTOMIDÆ.

Gen. CYCLOSTOMA, Lam.

1. *C. elegans*, Lam. Gray, Man. p. 275. pl. 7. f. 75; Turt. Man. p. 93. f. 75; Drap. p. 32. pl. 1. f. 5—8.

Turbo elegans, Mont. p. 342. t. 22. f. 7.

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Dr. Turton states that he found a single shell of the *Cyclostoma productum* near the sea-coast in the west of Ireland. Manual, p. 94.

[To be continued.]

XVII.—*On early Contributions to the Flora of Ireland; with Remarks on Mr. Mackay's Flora Hibernica.* By the Rev. T. D. HINCKS, LL.D., M.R.I.A.

To the Editors of the Annals and Magazine of Natural History.

[Continued from p. 12.]

GENTLEMEN,

MR. MACKAY has adopted the natural arrangement in preference to the Linnæan, and in doing this has probably also adopted that system preferred by the Dublin professor. This may have its use, but it seems a strange thing that no two botanists seem to be satisfied with the same arrangement, which is an inconvenience to those who wish to compare the Floras of different countries. It fortunately happens, however, that the variations in the plants contained, occur chiefly in those orders which contain few genera, for it is with respect to genera that the difference is most troublesome. I shall now proceed to offer some remarks upon the work.

p. 5. RANUNCULACEÆ.—*Thalictrum Alpinum* seems confined to Connaught. Dr. Wade found it in 1801 at Lettery

† Capt. Brown inadvertently notices this *Cyclostoma* as from "Portrush, in the cabinet of Dr. M'Donnell, Belfast." Irish Test. p. 522. The specimens thus alluded to have been shown me by Dr. M'Donnell, and are English—the species is unknown to him as Irish.

‡ Many years ago the *C. elegans*, brought alive from France, was turned out in the neighbourhood of Belfast. Here also, in 1835, a few individuals were introduced, as well as at Killiney-hill near Dublin, and in a garden within that city; and more lately at Summer-hill near Limerick—I am not aware of their having increased in any of these places.

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